

MR3701-50
Serial Number: 10/797,818
Reply to Office Action dated 20 October 2006

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AMENDMENTS TO THE CLAIMS

The following Listing of Claims will replace all prior versions, and listing of claims in the Application.

Listing of Claims:

1. (Withdrawn) An anti-microbial sanitary ware comprising:

a substrate; and

an anti-microbial film formed on said substrate and comprising a protective layer and anti-microbial metal particles that are dispersed in said protective layer;

wherein said protective layer is made from a compound selected from the group consisting of metal nitrides and metal carbides; and

wherein said anti-microbial metal particles are made from a metal selected from the group consisting of silver, zinc, and copper.
2. (Withdrawn) The anti-microbial sanitary ware of Claim 1, wherein said compound of said protective layer is metal nitride.
3. (Withdrawn) The anti-microbial sanitary ware of Claim 2, wherein said compound is selected from the group consisting of zirconium nitride, chromium nitride, and titanium nitride.

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4. (Withdrawn) The anti-microbial sanitary ware of Claim 3, wherein said compound is zirconium nitride.

5. (Withdrawn) The anti-microbial sanitary ware of Claim 4, wherein said substrate is made from a material selected from the group consisting of copper alloy, zinc alloy, stainless steel, ceramics, and plastics.

6. (Withdrawn) The anti-microbial sanitary ware of Claim 5, wherein said substrate is made from copper alloy.

7. (Previously Presented) A method for making an anti-microbial sanitary ware, comprising the steps of:

placing a substrate in a sputtering chamber in a sputter;

simultaneously sputtering a first metal target of a first metal and a second metal target of a second metal through closed-field unbalanced magnetron sputtering techniques;

forming a continuously closed magnetic field around the substrate;

reacting the first metal into a metal compound and subsequently depositing said metal compound on the substrate thereby forming a protective layer; and

generating metal particles of the second metal having a size of less than 100 nanometers and dispersing said metal particles in the protective layer;

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wherein the second metal is selected from the group consisting of silver, zinc, and copper; and

wherein the metal compound is selected from the group consisting of metal nitrides and metal carbides.

8. (Original) The method of Claim 7, wherein the first metal is selected from the group consisting of zirconium, chromium, and titanium.

9. (Original) The method of Claim 8, wherein the metal compound is selected from the group consisting of zirconium nitride, chromium nitride, and titanium nitride.

10. (Original) The method of Claim 9, wherein the substrate is made from a material selected from the group consisting of copper alloy, zinc alloy, stainless steel, ceramics, and plastics.

11. (Currently Amended) The method of Claim 10, wherein the sputtering for the first metal target is conducted at a voltage ranging from 20-50V, and a current ranging from 3.5-4.5A

and wherein the sputtering for the second metal target is conducted at a voltage of less than 20V, and a current ranging from 0.3-0.5A, said sputtering is

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conducted at a temperature ranging from 80-180°, at a pressure ranging from 0.1-20 mTorr for a sputtering time ranging from 3-13 minutes.

Claims 12-15 (Canceled).